



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/691,802 | 10/22/2003 | Dan W. Pratt | COR-1075-US | 6673 |
| 24923 | 7590 | 08/29/2006 | EXAMINER | |
| PAUL S MADAN MADAN, MOSSMAN & SRIRAM, PC 2603 AUGUSTA, SUITE 700 HOUSTON, TX 77057-1130 | | | BERGIN, JAMES S | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3641 | |

DATE MAILED: 08/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/691,802

Applicant(s)

PRATT ET AL.

Examiner

James S. Bergin

Art Unit

3641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3/13/2006 & 6/22/2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 and 33-42 is/are pending in the application.
- 4a) Of the above claim(s) 1-19, 24, 26-31 and 39-42 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-23, 25 and 33-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of invention II, claims 20-23, 25, and 33-38 in the reply filed on 6/22/2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claims 1-14, 18, 19, 24, 26-31 have been withdrawn from further consideration by the applicants as being drawn to nonelected inventions and/ or species.
3. Claims 15-17 and 39-42 are withdrawn by the examiner from further consideration pursuant to 37 CFR 1.142(b), as being drawn to the nonelected group I invention, there being no allowable generic or linking claim.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 36-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding new claims 36-38, it is unclear whether the applicants' are attempting to claim a method of using the shaped charge of apparatus claim 20. The applicants' are reminded that the elected invention of claim 20 is drawn to an apparatus that is capable of perforating a subterranean formation rather than a method of perforating a subterranean formation per se.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 20-23, 25 and 33-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Powell (US 6,786,157 B1) in view of Liu (US 2003/0037692 A1).

Regarding claims 20 and 33, Powell discloses a shaped charge 10 explosive device (see abstract; Fig. 1) comprising a charge case 2 (Fig. 1) inherently adapted to be positioned in a perforating gun (col. 8, lines 13-30); an explosive charge 18; a liner 22, 32; a powdered aluminum filling 45 located in the liner cavity (col. 4, lines 5-37); the liner upon detonation of the explosive charge is driven in the same way as that of a conventional shaped charge liner forming a highly energetic, non-cohesive stream (jet) of particles (col. 2, lines 39-47).

Powell does not specifically disclose that the stream (jet) has a forward portion that is denser than the following particulated stream (jet) of particles or that Powell's penetrator comprises a metal cap disposed upon the liner.

Liu discloses a shaped charge for perforating a stimulating subterranean formation (paragraphs [0137] – [0140], Figs. 6, 7, 8A and 8B) comprising a metal cap layer 11 that forms a leading penetrating metal precursor portion of the jet, the cap layer 11 formed from tungsten, iron, tin, copper, lead etc.

In view of Liu, it would have been obvious to one of ordinary skill in the art at the time that the invention was made to include a metal cap layer disposed upon Powell's liner, thereby providing Powell's particulated stream (jet) with a more dense leading metal portion with enhanced penetrative properties.

Regarding claims 21, 22, 23 and 35, the particulated portion of Powell's jet is formed from powdered aluminum (col. 4, lines 5-37; col. 2, lines 39-47) which inherently has a density of less than 2.7g/cc (note applicants' admission on page 9 of the specification regarding the density of aluminum), which would inherently approximate the density of an oil bearing formation in a downhole environment.

Regarding claim 25, Powell's liner membranes 22, 32 are conical (Fig. 1; col. 4, lines 17-20).

Regarding claim 34, it is inherent to Powell that the liner forming a precursor jet is conformal to the charge case.

Regarding claims 36, 37 and 38, Powell discloses that the shaped charge can be used in a downhole environment for cutting wellbore casings "*narrow bore, thick walled pipes, typical of well liners and drilling shafts*" (col. 8, lines 13-30). When used in a downhole environment, Powell's perforator as modified by Liu would inherently perforate the subterranean formation and the particulated portion of the Powells' jet would inherently increase in temperature and inherently reduce intersitial fluid viscosity upon penetration into the subterranean formation.

Conclusion

Art Unit: 3641

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Grove et al. (US 6,021,714); Arnold (DE 101 29 227 A1); Chawla (DE 196 30 339 A1); and Murray et al. (AU 9859458 A).

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Bergin whose telephone number is 571-272-6872. The examiner can normally be reached on Monday - Wednesday and Friday, 8.30 - 5.30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 571-272-6873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



James S. Bergin



MICHAEL J. CARONE
SUPERVISORY PATENT EXAMINER